An Overview of Microsoft Research, China

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Microsoft Research, China

Talk Outline

- A Brief History of MSRC
- Environment in China
- MSRC Progress Report
  - Opening Ceremony, PR & Awareness
  - Government & University Relations
  - Facilities, Location
  - Recruiting Successes
  - Research Areas
  - People, Culture

Brief History of MSRC

- Late 1997 -- Proposal for MSRC.
- July 1998 -- Kai-Fu Lee joins.
- September 1998 -- Beijing selected; actively planning.
- November 1998 -- Announced.
- June 1999 -- Initial research team on board.

Why China?

- Market Potential
  - Largest software market in 10-15 years.
  - Unique technology challenges.
- Talent Pool
  - Fine universities rapidly improving.
  - Particular emphasis on education.
  - 1000 Ph.D.'s per year in CS-related areas.

Our Goal

- Mission
  - Build the best research lab in Asia.
- Goals
  - Attract the best talent in China.
  - Perform world class research
  - Make significant impact to MS products
  - Improve the image of MS in China

Environment - IT Industry

- Healthy PC business
  - 4M units, 25+% growth
- Explosive Internet growth
  - 2M users
  - but not e-commerce
- Several local PC Stars
  - Legend, Founder overtake Compaq, IBM, etc.
- Software industry small
  - due to 96% piracy

Environment - Education

- **Undergraduate**
  - Very competitive entry.
    - University rankings are not ambiguous;
    - <0.1% get into Tsinghua.
  - Good, 4-year programs at 10+ universities.
  - Solid, 5-year science & engineering programs at Tsinghua and USTC.
  - "Planning" for Tsinghua and Beijing Univ to among best in the world.
- **Graduate**
  - 3-year Master; 3 year Ph.D.
  - 25-75% time spent on "horizontal projects", for survival.

Environment - Education

- **Myths**
  - Everybody goes to the US.
  - BS > MS > PhD.
- **Where do Top B.S. & M.S. Students Go?**
  - US (Particularly Tsinghua, Peking, USTC)
  - Tsinghua (most schools)
  - CAS (many schools, particularly USTC)
  - Stay & do Ph.D. (Harbin, Zhejiang)
  - Make $ (Many schools, particularly ones in Shanghai)
- **Doesn't Everybody go to the US?**
  - 1989 - 1993 : many top students (50%?) stay.
  - 1993 - Date : many top students (>80%) leave..
  - Future prediction : more will stay.

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My Favorite Schools

- Tsinghua <==> MIT
- Peking Univ <==> Harvard
- Harbin Institute of Technology <==> CMU
- USTC (&CAS) <==> Cal Tech
- Zhejiang <==> UW

Environment - Research

- Chinese Academy of Sciences
  - Undergoing reform.
  - Keep 10% of researchers; give them 500+% increase in pay and funding.
- Microsoft viewed as a catalyst for this reform.
  - (Not true!)

Environment - MSRC's Competition

- IBM
  - "Gift from Gerstner to Jiang Zemin".
- Intel
  - "Runs international research FROM China"
- Lucent, Motorola
  - "Ph.D. Students are better developers"
- Chinese Academy of Sciences
- Local Companies -- Legend, Founder, Haier
  - "Unification of Sales, Development, and Research"

Environment - Culture

- + Highly informed about world affairs.
- + Very adaptive, entrepreneurial, resilient
- + Strong emphasis on education.
- - Etiquette, Protocols, Bureaucracy
  - "Student Distribution Office", "Training Fee","Foreign Enterprise Student Quota", "Foreign Affairs Office", "Residence" (Hukou)
- Critical Success Factors
  - Relationships (Guanxi)
  - Positive image & perception -- very easy to perpetuate a myth.

Environment - Cultural Dilemmas

- **Traditional Value**
  - Honor
  - Nationalism
  - Middle-of-the-Road
  - Respect for Old
- **New Belief**
  - Wealth
  - Admiration for West
  - Direct
  - Admiration for Young

Progress Report - PR









Progress Report - PR


儒雅谦和
名士风流



"Microsoft + China, this is an opportunity of a lifetime for me."

"Working with incredibly smart people on problems that will help billions – – this is what makes MSR great."

Progress Report - PR

COVER STORY

Cover Story

Far East Economic Review

Short Cuts to Gene-ius



Tsuney Chang (right), Taiwan's research chief, Kuo Lee (center) has a brainstorming session with recently hired researchers from local universities.

Progress Report - PR

Ministry of Technology Zhu Lilan praises Microsoft for its far-sightedness, and its open research style.

The worrisome future of "nationalistic" software industry



Micro soft Corp

Progress Report - PR

- "I am pleased to see that at least there is one research institute that still encourages risk taking"
  - China Computer World
- "Microsoft will undoubtedly hire the best people from China. This should be a wake-up call that our nationalistic software industry may never see the light of the day."
  - Beijing Youth Daily
- "Dr. Lee says everyone of his employees is capable of finding a great job in the US. In that sense, Microsoft is actually retaining top talent for China."
  - China News Daily
- "Our young people are like 0's, and the world-class leaders in MSR, China are 1's. Without the 1 in front, the 0's amount to nothing."
  - Beijing Youth Daily

Progress Report - PR

- **Other Efforts**
  - 5 TV shows, including one 30-minute sh
    devoted
    to MSRC.
  - Monthly column by KFL.
  - Nredlletter
- **Very high awareness**
  - Already perceived as
    the most prestigeous &
    desirable research lab.
  - 1000 job application.
  - 1000 phone call inquiries.





Progress Report - Government

- Ministry of Science & Technology
- Ministry of Information Industries
- Ministry of Education



Micro soft Corp

Progress Report - Government



Visit From Zhou Guangzhau,
Vice Chairman, People's Standing Congress.
Former President, Chinese Academy of Sciences.

Progress Report - University

- Programs
  - Microsoft Fellowship
  - Software Donation
  - Internship & Visiting Scholar (from univ.)
  - Visiting Professor (for MSRC researchers)
- Events
  - Talks at Universities (MSRC & our guests)
  - Lab visits
  - Open house & dinner events

Progress Report - University Software Donation



"Next time, can you donate some software that we don't already have pirated versions of?"
- An anonymous professor.

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Progress Report - University
A Typical Talk At University





Progress Report - Relationships

Lab Visit



Progress Report - University Open House





Progress Report - University Open House









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Progress Report - University Dinner Event





Location
Lecture Room



Lounge & Library



People



People



People



Recruiting Report

	China	Abroad	#Applicant
Sr. Researcher / Res. Mgr	1	5	20
Researchers	3	3	100
Associate Researchers	27	0	500
Interns	35	5	N/A
Developers / IT	7		400

Progress Report - Recruiting

- **Ya-Qin Zhang, Senior Researcher**
  - Youngest IEEE Fellow ever (age 31).
  - Director of Multimedia at Sarnoff.
  - USTC Prodigy Class at age 12.
- **Chang-Ning Huang, Senior Researcher**
  - Most famous Chinese researcher in NLP.
  - Professor at Tsinghua University.
  - Only person ever invited from China to give plenary invited talk at COLING.
- **Harry Shum, Research Manager**
  - Transfer from Redmond.
  - Visual Perception Team to extend work on Concentric Mosaic.
  - South East University Prodigy Class at age 13.

Progress Report - Recruiting

- **Hongjiang Zhang, Research Manager**
  Manager of video technologies at HP Las.
  Pioneer in video analysis, browsing, retrieval.
- **Jin Li, Researcher**
  MTS, Sharp Labs. Active participant in JPEG2000.
  Regarded by Tsinghua professors as "best EE student ever graduated"
  Received by Deng Xiaoping as exemplary engineering talent.
- **Shipeng Li, Researcher**
  MTS, Sarnoff Labs. Active contributor to MPEG4.
  Recipient of two "Guo Muoruo" Award at USTC -- only one in history

Progress Report - Recruiting

- **Yike Guo, Researcher**
  Technical Director, Imperial College Distributed Computer Lab.
- **Jiang Li, Researcher**
  Only person to win every Best Paper Award at ChinaGraph
- **Wenyin Liu, Researcher**
  Winner of IEEE Competition on graphic drawing recognition.
- **[Name Withheld], Researcher**
  #1 expert in Asian language handwriting recognition

Associate Researchers

- Why?
  - Chinese Ph.D. only 3 years (often < 1 yr on thesis)
- Goals
  - Adds "flow of talent" to MSR.
  - Extended trial period.
  - Train more research talent for China.
  - Hope to become "official" post-doc program.

Hiring process for Associate Researchers

- (1) Applications (500)
- (2) Resume Screen (250)
- (3) Written Test (150)
- (4) Phone Screen (125)
- (5) Interview (27)

People

Admin
Eileen Chen
Jennifer Zhang
Jessica Zheng

Microsoft Research, China
Kai-Fu Lee
Ya-Qin Zhang

Natural Language
Changning Huang
Dongfeng Cai
Ting Liu
Haifeng Wang
Endong Xun

Internet Mining
Yike Guo
Jirong Wen ?

Speech & Handwriting
Mingjing Li
Shuo Di
Zheng Chen
Huang Chao
Zhou Jianlai
Jianfeng Gao

Multi-Modal UI
Jian Wang (Vis)
Gao Zhang
Jian Han
Jinlin Chen ?

Multimedia
Ya-Qin Zhang
Hongjiang Zhang
Jin Li
Shipeng Li
Hao Jiang
Huairong Shao
Hongwu Wang
Yudong Yang
Jie Yan
Qi Wei
Qian Zhang
Xiangyong Chen

Visual Perception
Harry Shum
Jiang Li
Wenyin Liu
Yingqing Xu
Yanjun Xu
Lifeng Wang
Mingsheng Wu
Xin Tong

Dev. & IT
Xiaoning Ling
Frank Yang
Gongxian Chen
Honghui Sun
Yanfeng Sun
Wenzhang Zhu
Jingang Hou
Yan Li
Chunhui Hu

Recruiting / Communications
Sheila Shang

University Relations
Rongjin Zou

Our Technical Advisory Board

- Yunhe Pan
  - President, Zhejiang University
  - Member, Adademy of Engineering
- Ba Zhang
  - Professor, Tsinghua University
  - Member, Academy of Engineering
- Huisheng Chi
  - Executive VP, Beijing University
- Victor Zue
  - Associate Director, Laboratory of Computer Science

Our Technical Advisory Board



Research Areas

- Chinese information processing
  - Chinese NLP
  - Utilize all Internet data for:
    - data mining / enrichment / search, particularly for Chinese & cross-language.
    - Active language model for recognition
- Multimodal user interface
  - Speech, handwriting, vision, biometrics.
  - First applied to Asian languages.
- Multimedia
  - Fusion of vision, video, graphics, communications
  - Coding communication, retrieval of MM (taking advantage of MPEG4 and MPEG7)

Chinese Multimodal Input

- User studies to guide design of multi-modal interface.
- Continuous iterations of studies & design.

	English Keyboard	Chinese 5-Stroke	Chinese Pinyin	Chinese Speech	Chinese Handwriting
First-Time User Speed	★★		★★	★★	★★
Speed After Learning Curve	★★	★★★	★	★★	★
Low cognitive load (without 'Thinking')	★★	★★★	★	★	★
Retention (won't forget)	★★		★★	★★	★★

Multimodal Chinese Input Project

- Usability / Ergonomic Study
  - 2 Pinyin systems, 2 handwriting systems, 2 speech recognition systems.
  - Compare system performance against each other, and against natural writing / speaking.
  - Output can also include a usability guide.
- Design of a multimodal prototype
  - Likely to be flat-panel configuration.
  - Details will depend on usability study.

MSRC Culture



Chinese New Year Party (all of MS China)





Corporation

MSRC Culture







Just For Fun





Just For Fun





My First Birthday In China

More Birthdays....

Just For Fun





Just For Fun

